7555-01-P

NATIONAL SCIENCE FOUNDATION

Notice of Intent to Prepare an Environmental Impact Statement and Initiate Section 106 Consultation for a Potential National Science Foundation Investment in the Construction and Operation of an Extremely Large Telescope Located in the Northern Hemisphere and Notice of Public Scoping Meetings and Comment Period

AGENCY: National Science Foundation.

ACTION: Notice.

SUMMARY: In compliance with the National Environmental Policy Act of 1969, as amended, the National Science Foundation (NSF) intends to prepare an Environmental Impact Statement (EIS) to evaluate environmental effects of an NSF investment in the construction and operation of an Extremely Large Telescope (ELT) located in the Northern Hemisphere, which is a potential future funding action. (Refer to supplementary information below for more detail about NSF's decision-making process.)

DATES: This notice initiates the public scoping process for the EIS and the Section 106 consultation process pursuant to *Code of Federal Regulations* title 36, section 800.2(d). Comments on issues may be submitted during the scoping meetings scheduled for August 9 through 12, 2022, on the Island of Hawaii (refer to details below) or in writing electronically or via postal mail until September 17, 2022. To be eligible for inclusion in the Draft EIS, all comments must be received prior to the close of the scoping period. Comments on NSF's Draft CEP may also be submitted prior to, and during, the scoping meetings or in writing

through September 17, 2022. The public will be notified of the dates, times, and locations of the Section 106 meetings at a later date.

ADDRESSES: You may submit comments related to this Proposed Action by either of the following methods. Note that comments will be accepted via the website starting at approximately 9 a.m. EDT on July 19, 2022 :

- **Website**: https://beta.nsf.gov/tmt
- **Mail to:** Ms. Elizabeth Pentecost, RE: ELT
  National Science Foundation,
  Room W9152
  2415 Eisenhower Ave.
  Alexandria, VA 22314

Scoping Meetings:

NSF will host four in-person public scoping meetings from 6:00 p.m. to 8:00 p.m. at the following locations and dates:

- Hilo: August 9, 2022, at the Grand Naniloa Doubletree by Hilton Hotel, Crown Room, 93 Banyan Dr., Hilo, HI 96720
- Naalehu: August 10, 2022, at the Naalehu Community Center, 95-5635 Hawaii Belt Rd., Naalehu, HI 96772
- Kona: August 11, 2022, at the Outrigger Kona Resort & Spa, Kaleiopapa Convention Center, 78-128 Ehukai St., Kailua-Kona, HI 96740
- Kamuela (Waimea): August 12, 2022, at the Kahilu Town Hall, 67-1182 Lindsey Rd., Kamuela, HI 96743

Comments will be accepted during the meetings in writing and verbally. Please contact NSF at least one week in advance of each meeting if you would

like to request special accommodations (e.g., sign language interpretation). Comments can also be provided in the Hawaiian language, which will subsequently be translated to the English language to facilitate NSF's consideration of those comments.

FOR FURTHER INFORMATION CONTACT: For further information regarding the EIS process or the Section 106 consultation process, please contact: Ms. Elizabeth Pentecost, National Science Foundation, Division of Astronomical Sciences, Room W9152, 2415 Eisenhower Ave., Alexandria, VA 22314; telephone: (703) 292-4907; email: EIS.106.TMT@nsf.gov.

SUPPLEMENTARY INFORMATION: By this notice, NSF is announcing the beginning of the scoping process to solicit public comments and identify issues to be analyzed in the EIS. NSF welcomes public comments on potential alternatives, information, and analyses relevant to the environmental review. NSF also intends to initiate consultation under Section 106 of the National Historic Preservation Act (NHPA) (Section 106) to evaluate anticipated effects on historic properties resulting from a potential NSF investment in the construction and operation of a Northern Hemisphere ELT located on the summit of Maunakea, Hawaii Island, Hawaii, which is the only location in the United States for which alternatives will be analyzed. NSF enters into this process with an understanding that the issue of constructing an ELT on Maunakea is a sensitive one, with both strong proponents and strong opponents of the proposed project; NSF was informed of the reasons for these varying positions through numerous informal meetings, spanning a 16-month period, with individuals and groups with a connection to Maunakea. NSF also received numerous written comments. As a result of those meetings and written comments, NSF heard that it should be proactive in its engagement with the Native Hawaiian community during any

environmental review by providing additional opportunities for meaningful and effective public participation. To that end, NSF also invites the public to comment on NSF's plans to engage the public in its EIS and Section 106 compliance processes through review of and comment on NSF's Draft Community Engagement Plan (Draft CEP), located at https://beta.nsf.gov/tmt (starting at approximately 9 a.m. EDT on July 19, 2022).

The Draft CEP is also available at the following local libraries:

Oahu

- James & Abigail Campbell Library
  University of Hawaii at West Oahu
  91-1001 Farrington Hwy.
  Kapolei, HI 96707
- Hawaii Kai Public Library
  249 Lunalilo Home Rd.
  Honolulu, HI 96825

Hawaii

- Edwin H. Mookini Library
  University of Hawaii at Hilo
  200 W. Kawili St.
  Hilo, HI 96720-4091
- Thelma Parker Memorial Public and School Library
  67-1209 Mamalahoa Hwy.
  Kamuela, HI 96743

- Hilo Public Library

  300 Waianuenue Ave.

  Hilo, HI 96720

- Pahala Public and School Library

  96-3150 Pikake St.

  Pahala, HI 96777

- Kailua-Kona Public Library

  75-138 Hualalai Rd.

  Kailua-Kona, HI 96740

Kauai

- Lihue Public Library

  4344 Hardy St.

  Lihue, HI 96766

- Princeville Public Library

  4343 Emmalani Dr.

  Princeville, HI 96722

Maui

- Kihei Public Library

  35 Waimahaihai St.

  Kihei, HI 96753

Background

The U.S. astronomy community via the National Academies of Sciences, Engineering, and Medicine (NASEM) recently completed its 2020 Astronomy and Astrophysics Decadal Survey (Astro2020) culminating with the October 2021

release of the final report titled, *Pathways to Discovery in Astronomy and Astrophysics for the 2020s*[1]. Astro2020 is the seventh decadal survey of the field and provides valuable advice to federal agency sponsors regarding astronomy and astrophysics research priorities for the upcoming decade (2020–2030). In its report, the Astro2020 committee concluded that "U.S. ELT is a critical priority for investment for ground-based astronomy in the coming decade." Because NSF is the steward of ground-based astronomy in the United States, the committee recommended that the "National Science Foundation (NSF) should achieve a federal investment in at least one and ideally both of the two extremely large telescope projects—the Giant Magellan Telescope and the Thirty Meter Telescope."

The first step toward implementing Astro2020's highest-priority recommendation would be for NSF to initiate a US-ELT Program comprising a Northern Hemisphere ELT, a Southern Hemisphere ELT, or both. The purpose of a US-ELT Program would be to provide access for the U.S. scientific community to the cutting-edge capabilities of this new class of telescopes. The angular resolution and light-gathering power of these ELTs with large equivalent apertures (e.g., 25–40 meters) would enable astronomers to search for signatures of life on Earth-like planets; probe the fundamental physics of gravitational waves, dark matter, and dark energy; and study in detail the assembly of galaxies in the early Universe.

The NSF Directorate for Mathematical and Physical Sciences, Division of Astronomical Sciences, based upon advice from the academic community, has identified the need to acquire the unique capabilities of an ELT located in the

[1] https://www.nap.edu/catalog/26141/pathways-to-discovery-in-astronomy-and-astrophysics-for-the-2020s

Northern Hemisphere to be included in a US--ELT Program. NSF takes recommendations from the astronomy community like those from Astro2020 seriously; therefore, the Proposed Action under consideration is an NSF investment in the construction and operation of an ELT in the Northern Hemisphere. The only proposed Northern Hemisphere ELT identified in the Astro2020 report is the Thirty Meter Telescope (TMT), which has a preferred site on the summit of Maunakea, Hawaii Island, Hawaii, and an alternative site on Roque de los Muchachos, La Palma, in the Canary Islands.

Purpose of Public Scoping Process

The purpose of the public scoping process is to determine relevant issues that will influence the scope of the environmental analysis, including identification of viable alternatives, and to guide the process for developing the EIS. Federal, state, and local agencies, along with members of the public who may be interested or affected by NSF's ultimate decision on this Proposed Action, are invited to participate in the scoping process and, if eligible, may request to participate as a cooperating agency.

Preliminary Proposed Alternatives

Alternatives to be evaluated in the EIS will be refined through public input, with preliminary proposed alternatives that include the following:

- No NSF investment in the construction and operation of an ELT in the Northern Hemisphere (No Action Alternative)
- Investment in the construction and operation of TMT (as the ELT in the Northern Hemisphere) located on Maunakea, Hawaii Island, Hawaii (Action Alternative 1)

- Investment in the construction and operation of TMT (as the ELT in the Northern Hemisphere) located on Maunakea, Hawaii Island, Hawaii, with an NSF-facilitated plan to define and practice responsible astronomy in Hawaii in partnership with the Mauna Kea Stewardship and Oversight Authority, the Maunakea Observatories, and the affected Hawaiian community (Action Alternative 2)
- Investment in the construction and operation of TMT (as the ELT in the Northern Hemisphere) located on Roque de los Muchachos, La Palma, Canary Islands (Action Alternative 3)

Proposed Scope of Environmental Review

The EIS will evaluate the potential environmental (including cultural) direct, indirect, and cumulative effects resulting from the implementation of the Proposed Action and Action Alternatives. At present, NSF has identified the following resource areas for analysis of potential impacts. Cultural resources will be analyzed for potential impacts on traditional cultural places; archaeological resources; and historic buildings and structures. Visual resources will include an analysis of sensitive viewsheds. The socioeconomics analysis will consider potential impacts on population and housing; the economy, employment, and income; education; tourism; and environmental justice. The land use evaluation will include an analysis of potential impacts on existing plans, policies, and controls, as well as coastal zone management. The health and safety evaluation will analyze potential impacts on natural resources; occupational health and public safety; and protection of children. Biological resources will be evaluated for potential impacts on native vegetation; sensitive vegetation species; invasive vegetation species; native wildlife; sensitive wildlife species; invasive wildlife

species; and the United Nations Education, Scientific, and Cultural Organization (UNESCO) Biosphere Reserve near La Palma, Canary Islands (Alternative 3). Geological resources will be analyzed for potential impacts on geology, soils, and topography, including slope stability. Water resources will be evaluated for potential impacts on surface water, groundwater, and stormwater. The public services and utilities evaluation will include an analysis of potential impacts on power, communications, potable water, wastewater, and solid waste. Traffic and transportation will be analyzed for potential impacts on traffic and roadway conditions. Additional resources analyzed for potential impacts will include hazardous materials and waste, climate change, air quality, and noise. The level of review in the EIS will be proportionate with the anticipated level of effects on each resource from the Proposed Action and Action Alternatives. The EIS will analyze measures that would avoid, minimize, or mitigate potential environmental effects. Based on a preliminary evaluation of these resources, NSF expects the EIS to identify adverse effects on cultural/archaeological resources, biological resources, visual resources, and geological resources. Adverse effects to additional resources, as well as potential beneficial effects (e.g., on socioeconomics), will likely be identified based on public input and the result of any new studies or analyses.

NSF may conduct additional studies to inform the environmental review process, including a cultural resources study, archaeology survey, and ethnographic research; updated visual modeling; economic modeling; an environmental justice assessment (Hawaiian homeland locations); updated species/habitat surveys; a geology survey; a surface water/groundwater study; migratory bird study; and a contamination assessment.

In addition to NEPA, federal permits and other federal authorizations will be required. These processes, as well as consultation under Section 106 of the NHPA and Section 7 of the Endangered Species Act, as appropriate, will occur concurrently with the NEPA process. Other authorizations may be required pursuant to the Coastal Zone Management Act, the Migratory Bird Treaty Act, the Clean Water Act, the Rivers and Harbors Act, and the Clean Air Act. Because of the international location of Alternative 3, NSF would apply the provisions of Executive Order 12114, *Environmental Effects Abroad of Major Federal Actions* in analyzing that Alternative.

NSF Environmental Review Timeline

The following is a list of milestones and anticipated timeframes for the EIS and Section 106 processes:

- Scoping period will occur from July 19, 2022 through September 17, 2022
- A draft plan for any needed resource studies/analyses will be posted to the NSF webpage (https://beta.nsf.gov/tmt) for additional public comment in Fall/Winter 2022
- NSF will finalize the CEP based on public input (target late 2022) and implement the measures identified therein throughout the remainder of the process
- NSF will host a workshop to help inform Alternative 2 and the Section 106 process in Winter 2022/2023
- Section 106 consulting parties will meet to consult on the Area of Potential Effects and identify historic properties during Winter 2022/2023

- NSF will conduct any necessary studies and analyses and prepare the Draft EIS between Winter 2022 and Summer 2023
- The Draft EIS and accompanying public comment period, including public meetings, are anticipated in Summer 2023; NSF will continue to meet with consulting parties, pursuant to Section 106, to identify and resolve adverse effects to historic properties between Summer 2023 and Spring/Summer 2024
- Final EIS is anticipated in Spring/Summer 2024
- Record of Decision is anticipated in Fall 2024

NSF will not make a funding decision until after it considers the following:

- Public input
- Environmental review of the telescope
- Project's technical readiness
- Project proponent's management capabilities
- Availability of federal funding
- Telescope's alignment with other NSF priorities

(Please note that a decision by NSF not to go forward with an investment in the construction and operations of TMT could be made at any time, including before the EIS process has concluded.)

Proposal Information: Information will be posted throughout the EIS process at https://beta.nsf.gov/tmt.

Dated: July 14, 2022.

Suzanne H. Plimpton,

Reports Clearance Officer,

National Science Foundation.

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